Space Weather Forecast

Issued on Friday, 08 April 2022 at 13:30 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Minor Geomagnetic Storms, mainly Day 3 (10th).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours. There are currently four sunspot regions on the visible side of the Sun. The largest region remains in the southwest quadrant of the disc, and continues to slowly decay as it approaches the limb.
No Earth-directed coronal mass ejections (CMEs) have occurred in the last 24 hours, although there are a number of filaments (lines of material held together on the Sun by its magnetic field) visible on the Earth-facing disc that are being monitored for any potential eruption.

Solar Wind / Geomagnetic Activity: The solar wind started the period slightly elevated becoming Low by end the of Thursday and peaking at 422 km/s at 07/1320 UTC. The magnetic field carried by the wind was weak, with its north-south component also weak. Geomagnetic activity was Quiet to Active.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to continue mostly Very Low, with relatively fewer and less complex active regions on the visible side of the sun than of late. There remains a 40% Chance of a Common class flare to give Low solar activity.

Solar Wind / Geomagnetic Activity: The solar wind is likely to remain mostly Low with little change expected until Day 2 (9th April), when a glancing interaction from a CME which left the Sun around 04/2200 UTC, although this is very low confidence. Weak coronal hole influence is also forecast during this period, most likely during day 3 (10th) and persisting through day 4 (11th). Geomagnetic activity is forecast to be generally Quiet to Unsettled throughout, becoming Active at times from Day 2 (9th April), with a 20-40% chance of Minor geomagnetic Storms, with the highest risk on Day 3 (10 April).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	20	40	20
Strong	G3	No	1	1	5	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	2	1
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	2	2	2
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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